UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WALTER G. DIXON, ROBERT A. MACKIE,
THOMAS R. BAKITA, DWIGHT R. FRYE JR.,
JOHN G. WHITE, and KEITH R. SCHOMBURG

Appeal 2008-4313
Application 10/627,858
Technology Center 2100

Decided:[1] March 27, 2009

Before JOSEPH L. DIXON, ST. JOHN COURTENAY III, and
STEPHEN C. SIU, _Administrative Patent Judges._

SIU, _Administrative Patent Judge._

DECISION ON APPEAL

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[1] The two month time period for filing an appeal or commencing a civil action, as recited in 37 CFR § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

STATEMENT OF THE CASE

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1–26. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

The Invention

The disclosed invention relates generally to data maintenance and more particularly to a system and method for providing redundant data load sharing in a distributed network (Spec. 1).

Independent claim 1 is illustrative:

1. A method for providing redundant data load sharing in a distributed network, comprising:

receiving an original entry;

storing the original data entry in a first one of a plurality of nodes;

generating a replicated data entry from the original data entry;

storing the replicated data entry in a second one of the plurality of nodes;

identifying a failure of either of the first one or the second one of the plurality of nodes;

generating a re-replicated data entry in the non-failed first or second one of the plurality of nodes for storage at a third one of the plurality of nodes in response to the failure in the first or second one of the plurality of nodes.

The References

The Examiner relies upon the following references as evidence in support of the rejections:

| Ohran | 5,812,748 | Sep. 22, 1998 |
| Merchant | 2004/0230862 A1 | Nov. 18, 2004 |

The Rejections

1. The Examiner rejects claims 1–3, 9, 11–14, 16–19, and 22–24 under 35 U.S.C. § 103(a) as being unpatentable over Merchant.

2. The Examiner rejects claims 4–8, 10, 15, 20, 21, 25, and 26 under 35 U.S.C. § 103(a) as being unpatentable over Merchant in view of Ohran.

ISSUE #1

The Examiner finds that because "the removed node [of Merchant] could be failing" (Ans. 15), the node would provide "potentially erroneous data for the replication" (*id.*) which "could have a negative impact on the redundant storage reliability on which the Merchant invention is based" (*id.*). Thus, the Examiner finds that it would have been obvious to one of ordinary skill in the art "to have generated this replicated data from one of the non-failed nodes" (*id.*).

Appellants assert that "there is no suggestion or motivation in the Merchant, et al. to modify it as proposed by the Examiner" (App. Br. 7) and

that "a reasonable expectation of success has not been shown by the Examiner" (*id.* at 8).

Did Appellants demonstrate that the Examiner erred in finding that it would have been obvious to one of ordinary skill in the art to modify the Merchant reference?

ISSUE #2

The Examiner finds that Merchant discloses "generating a re-replicated data entry for storage at a third one of the plurality of nodes in response to the failure in the first or second one of the plurality of nodes (Merchant ¶ 0132 – ¶ 0137 . . .)." (Fin. Rej. 3). The Examiner further finds that, while "Merchant fails to explicitly disclose the re-replicated data entry being generated from a non-failed node" (*id.*), that "[i]t would have been obvious to one skilled in the art at the time of the invention that Merchant would have generated re-replicated data from the non-failed first or second one of the plurality of nodes to provide to the third of the plurality of nodes" (*id.*).

Appellants assert that Merchant is "concerned with merely relocating data from a node that is being selected for removal and not to data replication for redundant sharing as provided in the claimed invention" (App. Br. 9) and does not teach or suggest all of the claim limitations of the invention.

Did Appellants demonstrate that the Examiner erred in finding that Merchant discloses or suggests generation of re-replicated data entry for

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storage at a third one of the plurality of nodes, from a non-failed node, in response to the failure in the first or second one of the plurality of nodes?

ISSUE #3

The Examiner finds that "[i]t would have been obvious to one skilled in the art at the time of the invention to include the storage of at least one occurrence of Ohran in the invention of Merchant" (Fin. Rej. 11).

Appellants argue that there is no suggestion or motivation to combine Merchant and Ohran (App. Br. 10) and that "a reasonable expectation of success has not been shown by the Examiner" (Reply Br. 13).

Did Appellants demonstrate that the Examiner erred in finding that it would have been obvious to one skilled in the art at the time of the invention to combine Merchant and Ohran?

ISSUE #4

Appellants argue that "the Ohran, et al. patent fails to provide any capability to re-replicate data entries as required by the claimed invention" (Reply Br. 14).

Did Appellants demonstrate that the Examiner erred in finding that the combination of Merchant and Ohran discloses or suggests re-replication of data entries?

FINDINGS OF FACT

The following Findings of Facts (FF) are shown by a preponderance of the evidence.

1. Merchant discloses "techniques for storage environments in which redundant devices are provided or in which data is replicated" (¶ [0023]).

2. Merchant teaches that the fault-tolerant capabilities of a storage environment that uses redundant devices with replicated data are realized by being able to read data from more than one node (¶ [0027]).

3. Merchant teaches that if a node develops a fault, redundancy should be preserved by storing data that is available on that node onto another node (¶¶ [0132]–[0137] and Fig. 12).

4. Merchant specifically addresses the event of a node developing a fault that does not cause the node to fail completely, disclosing that the non-failed node itself can provide the data for re-replication onto another node (¶¶ [0132]–[0137] and Fig. 12).

5. Ohran discloses an "invention to provide tolerance to disk faults even though the computer of a server computer system has failed" (col. 3, ll. 19–21).

6. Ohran discloses that when a node in a redundant storage system fails, redundantly stored data entries on non-failed nodes are preserved (col. 7, ll. 44–65 and col. 8, ll. 1–6).

7.   The purpose of a fault-tolerant storage system that stores data

     redundantly is to provide for access to redundantly stored data in the

     event of failure in a component in the fault-tolerant storage system

     (*See* Merchant ¶ [0003] ("[A] feature commonly desired for

     enterprise-class storage systems is that the storage system should not

     lose data or stop serving data in circumstances that fall short of a

     complete disaster."); and Ohran, col. 1, ll. 21–29 ("It is often

     desirable to provide continuous operation of computer systems,

     particularly file servers . . . . To achieve this continuous operation, it

     is necessary for the computer system to be tolerant of software and

     hardware problems or faults. This is generally done by having

     redundant computers and redundant mass storage systems, such that

     a backup computer or disk drive is immediately available to take

     over in the event of a fault.")).

PRINCIPLES OF LAW

35 U.S.C. § 103(a)

Section 103(a) forbids issuance of a patent when "the
differences between the subject matter sought to be patented
and the prior art are such that the subject matter as a whole
would have been obvious at the time the invention was made to
a person having ordinary skill in the art to which said subject
matter pertains."

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007).

"What matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid under § 103." *Id.* at 419. In *KSR*, the Supreme Court emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art," *Id.* at 415, and discussed circumstances in which a patent might be determined to be obvious. *Id.* at 415–16 (citing *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966)). The Court reaffirmed principles based on its precedent that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* The operative question in this "functional approach" is thus "whether the improvement is more than the predictable use of prior art elements according to their established functions." *Id.* at 417.

ANALYSIS (ISSUE #1)

We agree with the Examiner that it would have been obvious to one of ordinary skill in the art, given Merchant's fault-tolerant storage system that enables data to be read from more than one node (FF 2), to re-replicate data from any node (including non-failed nodes) hosting the redundant data (Ans. 15), particularly given the fact, as the Examiner finds and Appellants do not contest, that non-failed nodes are less likely to provide erroneous data as compared to failed nodes. Appellants have failed to provide any evidence to show that re-replicating data in Merchant's redundant data storage system from any particular node (i.e., a node that is failing vs. a node that is not failing) would have entailed anything more than mere rearrangement of

known elements to achieve an expected result (i.e., successful re-replication of data from a node) or would have been "uniquely challenging or difficult for one of ordinary skill in the art." *See Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR*, 127 S. Ct. at 1741).

For at least the aforementioned reasons, we conclude that Appellants have not sustained the requisite burden on appeal in providing arguments or evidence persuasive of error in the Examiner's rejection of claims 1-26 with respect to issue #1.

ANALYSIS (ISSUE #2)

The conclusion of obviousness can be based on interrelated teachings of multiple patents, the effects of demands known to the design community or present in the marketplace, and the background knowledge possessed by a person having ordinary skill in the art and an obviousness "analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 550 U.S. at 418. *See also Dystar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006). As such, even assuming Appellants' contention to be true that "there is no disclosure in the Merchant, et al. application" (App. Br. 9) of re-replication of data from a non-failed node, we nevertheless find Appellants' arguments unavailing because we find that the Examiner has shown sufficient evidence to support

the contention that one skilled in the art at the time of the invention would have found it obvious to extend Merchant to generate re-replicated data entries for storage at a third one of the plurality of nodes, from a non-failed node, in response to the failure in the first or second one of the plurality of nodes.

In addition, Merchant teaches identifying a failure on a node (FF 3) where the failure on the node does not cause the node to fail completely (FF 4) and thus discloses identifying a failure on a node. Merchant also discloses re-replicating data from that node when the node failure does not cause the node to fail completely, such a node being a "non-failed node." Thus, we find that, contrary to Appellants' contention, Merchant discloses or suggests identifying a failure of a node and re-replicating data in a non-failed node (i.e., the node identified as failing).

For at least the reasons provided, we find that Appellants have failed to provide arguments or evidence persuasive of error in the Examiner's rejections of claims 1-26 with respect to issue #2.

ANALYSIS (ISSUE #3)

Appellants argue that "there is no suggestion or motivation to combine" (Reply Br. 12) the Merchant and Ohran references because "the Examiner has not provided any proper reasoning, let alone objective reasoning" (*id*. at 13) for such a combination. We disagree.

The Examiner finds that both "Merchant and Ohran are concerned with ensuring fault tolerance through data replication (Merchant ¶ 2 and

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Ohran col. 1, ll. 15–19)" (Ans. 19; FF 1 and 5) and that since the purpose of
a fault-tolerant storage system is to provide for access to redundantly stored
data in the event of failure in a component in the fault-tolerant storage
system, it would have been obvious to one of ordinary skill in the art (Ans.
19; FF 7) to combine the Merchant and Ohran references to, for example,
"maintain availability during an event in which the resources are stressed"
(Ans. 19–20; FF 7). Appellants have failed to provide a logical rationale
supporting the contention that the Examiner's stated reasons supporting
obviousness of the combination of the Merchant and Ohran references are
indeed "baseless and subjective" (Reply Br. 12). In the absence of such a
showing, we cannot agree with Appellants.

For at least the aforementioned reasons, we conclude that Appellants
have not sustained the requisite burden on appeal in providing arguments or
evidence persuasive of error in the Examiner's rejection of claims 4-8, 10,
15, 20, 21, 25, and 26 with respect to issue #3.

ANALYSIS (ISSUE #4)

The Examiner relies on Merchant's disclosure of re-replication of
data. Therefore, we find unavailing Appellants' argument that Ohran
supposedly fails to disclose this feature. One cannot show nonobviousness
by attacking references individually where the rejections are based on
combinations of references. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097
(Fed. Cir. 1986).

For at least the aforementioned reasons, we conclude that Appellants have not sustained the requisite burden on appeal in providing arguments or evidence persuasive of error in the Examiner's rejection of claims 4-8, 10, 15, 20, 21, 25, and 26 with respect to issue #4.

CONCLUSION OF LAW

Based on the findings of facts and analysis above, we conclude that Appellants have failed to demonstrate that the Examiner erred in:

1.   finding that it would have been obvious to one of ordinary skill in the art to modify the Merchant reference (issue #1),

2.   finding that Merchant discloses or suggests generation of re-replicated data entry for storage at a third one of the plurality of nodes, from a non-failed node, in response to the failure in the first or second one of the plurality of nodes (issue #2),

3.   finding that it would have been obvious to one skilled in the art at the time of the invention to combine Merchant and Ohran (issue #3), and

4.   finding that the combination of Merchant and Ohran discloses or suggests re-replication of data entries (issue #4).

DECISION

We affirm the Examiner's decision rejecting claims 1–26 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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